National Institute of Environmental Health Sciences

Correlation analysis for the attack of respiratory diseases and meteorological factors

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Abstract:

OBJECTIVE: To investigate the relationship between respiratory diseases onset and the meteorological factors in the same period and in a specific environment. METHODS METHODS: By using the data of daily incidence of respiratory diseases obtained from Dongzhimen Hospital Affiliated to Beijing University of Chinese Medicine from January 1, 1998 to December 31, 2007, and the data of 16 items of meteorological factors (such as the average, maximum, and minimum temperatures, etc., including meteorological factors derived) obtained from the Beijing Municipal Meteorological Observatory, mathematical statistical methods were applied to achieve the non-linear correlation analysis, or the correlation test, between the incidence of respiratory diseases and the time-related meteorological factors. RESULTS: The simple correlation coefficients of the relationship between the incidence of respiratory diseases and 9 meteorological elements, including the average values of temperature, maximum temperature, minimum temperature, degree of comfort, precipitation, vapor pressure, low cloud cover, change of vapor pressure, and change of wind speed, were all greater than 0.8286, in which one of the relationship between the incidence of respiratory diseases and the maximum temperature is as high as 0.9670. Statistical tests showed R>RalphaEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)0.05 and F>FalphaEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)0.05. CONCLUSIONS: The incidence of respiratory diseases was closely correlated to meteorological factors, such as air temperature, vapor pressure, precipitation, wind speed, etc. To a certain extent, this conclusion confirmed the scientificity and objectivity of the theory of five evolutive phases and six climatic factors (Wu Yun Liu Qi) in Huang Di Nei Jing (The Yellow Emperor's Canon of Internal Medicine).

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Precipitation, Temperature, Other Exposure

Other Exposure: cloud cover

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Bronchitis/Pneumonia, Interstitial Lung Disease, Upper Respiratory Allergy, Other Respiratory Effect

Respiratory Condition (other) : asthmatic bronchitis;pulmonary infection;acute tracheal bronchitis;acute bronchitis;chronic asthma;chronic asthmatic bronchitis;chronic asthmatic bronchitis attacks;chronic bronchitis;chronic bronchitis and pulmonary infections;bronchial pneumonia;lung infections;lobar pneumonia;pneumonia;aspiration pneumonia;radiation pneumonia

Medical Community Engagement: ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified